

Telecommunications Facilities



- ◆ **INERGEN® Fire Suppression Systems**
- ◆ **AUTOPULSE® Detection & Control Equipment**
- ◆ **CLEANGUARD® Hand Portable Fire Extinguishers**



Telecommunication services "cannot" be interrupted by fire

Even a relatively small fire in a critical location could cause the loss of telecommunications services to both homes and businesses. For some, the downtime would be inconvenient – for others, it could be critical. Lack of service for even a few hours due to fire can be crippling. Loss of service for a few days could be devastating. Direct damage to equipment, labor costs for repairs, and loss of revenue due to downtime must all be considered.

The Ansul solution

◆ INERGEN Fire Suppression Systems have been installed in thousands of telecommunications facilities worldwide. Fires have been successfully extinguished by INERGEN systems with only minor fire damage to the hardware involved and without causing business interruption.

◆ Very early warning fire detectors are connected to an AUTOPULSE Control Unit. The addressable, programmable detection system provides advanced warning, detection, alarm, equipment shutdown, and suppression system release functions.

◆ The National Fire Protection Association standards that deal with the protection of telecommunications facilities state that an extinguishing agent should not harm equipment. INERGEN agent cannot threaten delicate electronic hardware because it does not break down to form acidic acids. INERGEN agent does not produce a significant temperature drop in the protected space upon discharge. It does not produce a dense fog (condensed water vapor) that could collect on hardware or impede evacuation. Finally, because it is nearly the same density as air, INERGEN agent will maintain its extinguishing concentration for extended periods.

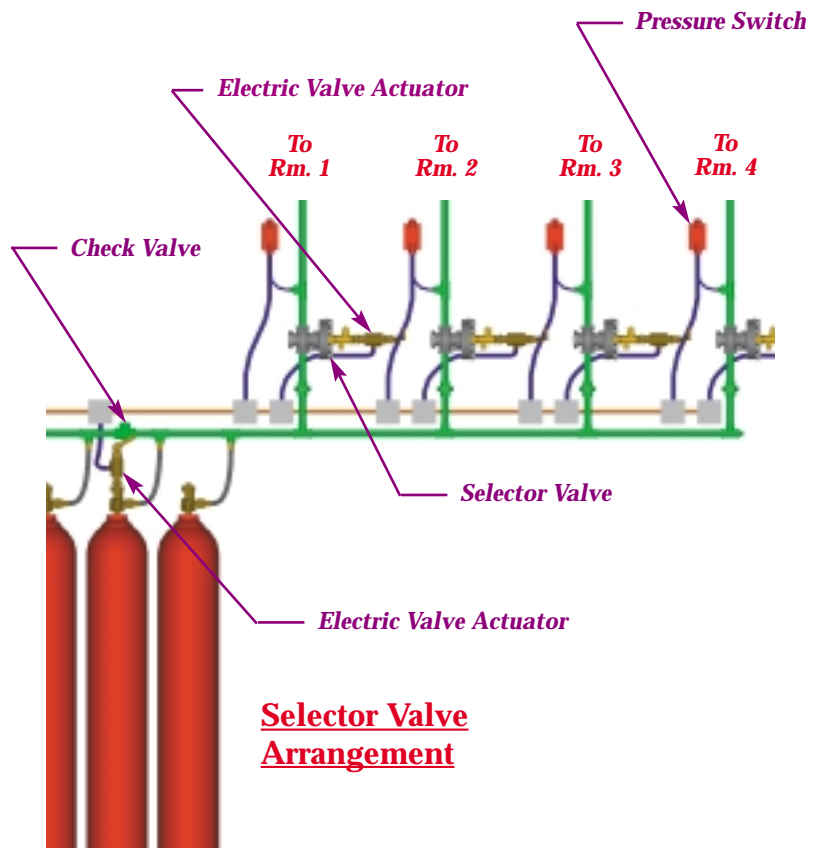
◆ The use of Selector Valves can provide a tremendous price advantage by reducing the installed cost of an INERGEN system. Because INERGEN agent is stored and flows as a gas, it can be discharged at significant distances. Agent storage cylinders can be located away from computer/switch rooms.

◆ INERGEN systems come with a long list of built-in features, innovative design, precision manufacturing, exhaustive testing, plus an Evergreen Discharge Warranty to cover the agent cost whenever your system is discharged (excluding system commissioning testing).

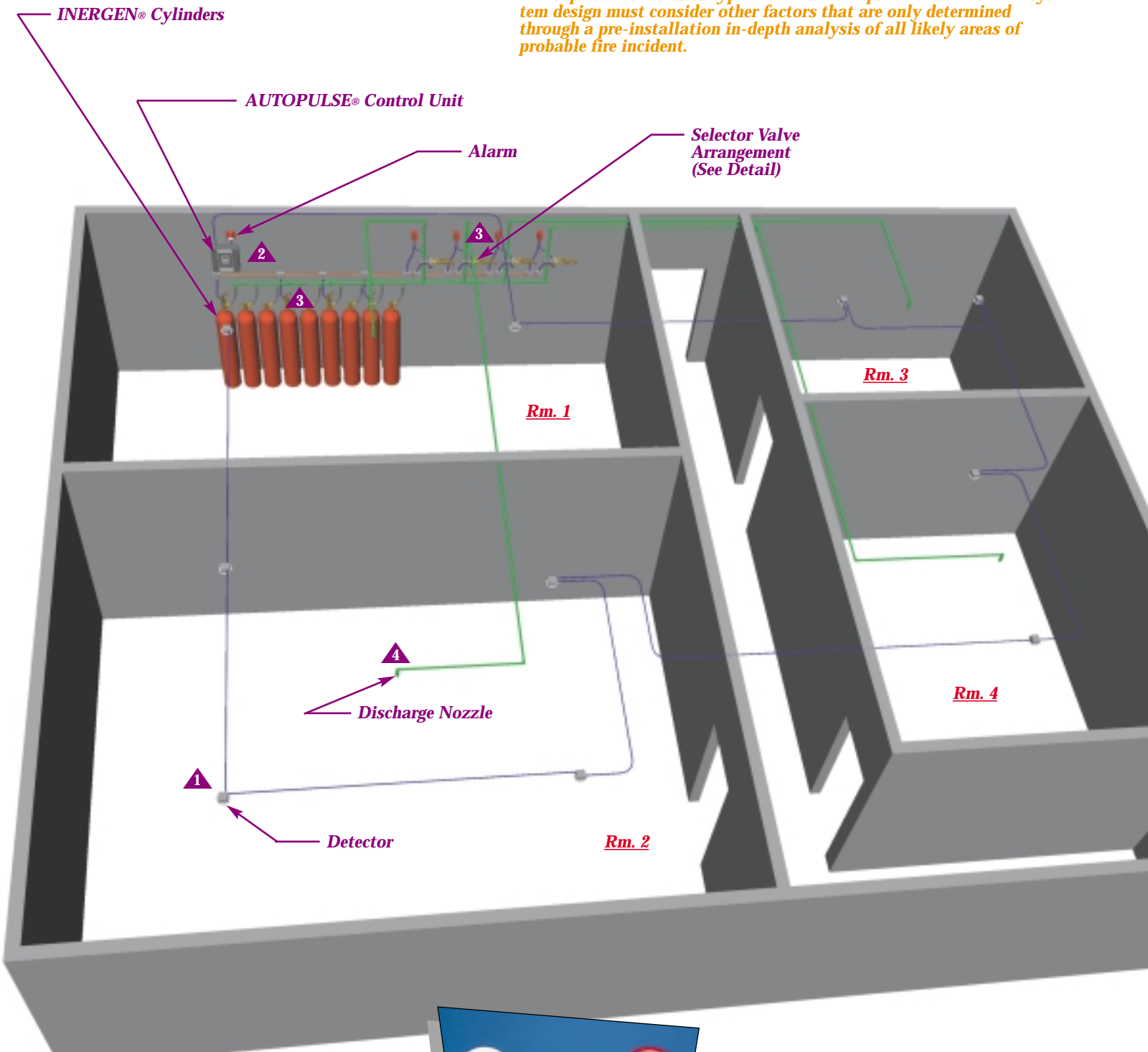
◆ Ansul recommends the installation of CLEAN GUARD portable fire extinguishers in telecommunications facilities. These "clean agent" portables meet or exceed the standards set forth by the authority having jurisdiction.

An agent for the future

INERGEN agent is the long-term solution for protecting lives, property, and the environment. Composed of three naturally occurring gases found in the air we breathe – nitrogen, argon, and carbon dioxide – INERGEN agent spreads quickly throughout a protected space with no agent residue to clean up. This environment-friendly agent boasts ZERO ozone depletion potential, ZERO global warming potential, and ZERO atmospheric lifetime. And because it is not a synthetic chemical, INERGEN agent has not been banned from use by any country. It is listed and approved by governmental and nationally recognized laboratories around the world.



NOTE: This drawing is conceptual in nature. The fire suppression system depicted constitutes typical hardware requirements. The final system design must consider other factors that are only determined through a pre-installation in-depth analysis of all likely areas of probable fire incident.



**AUTOPULSE®
Control Units**



**Detection
and Control
Equipment**



**Nozzles and
Manifold Orifice
Devices**



INERGEN agent is stored as a gas mixture in DOT approved cylinders. INERGEN cylinders can be installed either vertically or horizontally – and are available in various sizes – allowing the system design engineer to store the proper amount of agent in the fewest number of cylinders to save space and installation costs.



**CLEANGUARD®
Hand Portable Fire
Extinguishers**

Fire detection/ suppression system operation

1. Very early warning fire detectors in one hazard area sense a condition that causes an advanced warning signal to be sent to the AUTOPULSE control unit. If the fire condition progresses, a fire signal is generated.
2. The AUTOPULSE control unit then initiates a series of actions... sounds alarms, shuts down ventilation – and after the prescribed time delay – energizes the cylinder electric actuator and the selector valve actuator for the affected hazard area.
3. The cylinder valve and selector valve open allowing INERGEN agent to flow through the piping network into the affected room.
4. INERGEN agent discharges through the nozzles where it quickly floods the protected space to suppress the fire.



**Selector Valve
and Piping Arrangement**

Installation and service

INERGEN fire suppression systems are installed, maintained, and serviced by a worldwide network of Ansul-authorized fire equipment distributors who are factory trained and fully equipped to keep your systems fire-ready.



Specifications

EVERGREEN DISCHARGE WARRANTY

INERGEN® FIRE SUPPRESSION SYSTEMS

Subject to the conditions set forth below, Ansul Incorporated ("ANSUL") will, as purchaser's sole remedy, replace the INERGEN Agent for a period of up to TEN YEARS from the date of commissioning the INERGEN fire suppression system. ANSUL will pay for the cost of the INERGEN Agent only, regardless of the cause of the fire suppression system discharge.

Excluded from this Warranty is any System Commissioning Discharge Test.

This warranty shall be effective only if the original purchaser maintains a semi-annual service agreement for the INERGEN Fire Suppression System with an Authorized ANSUL Distributor from the date of installation. This warranty covers only those INERGEN Fire Suppression Systems which incorporate and use hardware and components - including detection and control devices - which are manufactured, sold, or approved by ANSUL. This warranty may not be assigned or transferred to others.

The ANSUL Quality Services Department must be notified within three days of the discharge of the INERGEN Fire Suppression System and must approve the cost of the INERGEN Agent in advance.

Except as provided above, ANSUL MAKES NO WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. UNDER NO CIRCUMSTANCES SHALL ANSUL HAVE ANY LIABILITY FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL OR SIMILAR DAMAGES. ANSUL SHALL HAVE NO LIABILITY FOR ANY DAMAGES DUE TO DELAY IN RECHARGING THE "INERGEN" FIRE SUPPRESSION SYSTEM. ANSUL'S MAXIMUM LIABILITY FOR DIRECT DAMAGES IS LIMITED TO THE REPLACEMENT OF THE "INERGEN" AGENT.

This warranty is not effective unless Ansul Form No. F-9502 is completed and returned to Ansul within ten days of the commissioning of the INERGEN Fire Suppression System.

1.01 SYSTEM ARRANGEMENT

A. INERGEN fire suppression system shall be of the engineered fixed-nozzle type with all pertinent components provided by Ansul Incorporated.

B. Agent storage cylinders shall be centrally located free-standing cylinders with wall-mounted retaining brackets. Where multiple cylinders are required for the same hazard, a common manifold shall be employed.

C. One cylinder shall be designated as the pilot cylinder and employ the electric actuator, mechanical manual actuator, or both. All remaining cylinders shall be pneumatically operated from the INERGEN agent.

D. Manifold cylinders shall employ a flexible discharge hose to facilitate installation and system maintenance. Each cylinder on a manifold shall also include an agent check valve installed to the manifold inlet.

1.02 FLOW CALCULATIONS

A. Computerized verification of flow calculations shall be submitted for each INERGEN fire suppression system and include the following data as a minimum:

- 1) Quantity of agent per nozzle.
- 2) Manifold orifice device and nozzle orifice diameters.
- 3) Pressure at nozzle.
- 4) Nozzle body nominal pipe size.
- 5) Number and size of cylinders.
- 6) Total agent quantity.
- 7) Pipe size and schedule per pipe section.
- 8) Number, size and type of fitting per pipe section.
- 9) Actual and equivalent lengths per pipe section.
- 10) Discharge time.

2.01 PIPE MATERIAL

A. System piping shall be of noncombustible materials having physical and chemical characteristics such that its integrity under stress can be predicted with reliability.

B. As a minimum, piping materials shall be black steel pipe conforming to ASTM A-53A ERW or ASTM A-106A seamless.

C. Under no conditions shall ordinary cast iron pipe, steel pipe conforming to ASTM A-120 or ASTM A-53/A-120 be used.

D. Piping joints shall be suitable for the design conditions and shall be selected with consideration of joint tightness and mechanical strength.

E. As a minimum, fittings beyond the manifold orifice device shall be black, 300 lb. class conforming to ANSI B-16.3.

Ordinary cast iron fittings shall not be used. Distribution piping downstream of the manifold orifice device must be a minimum of Schedule 40.

F. The system manifold up to the manifold orifice device must be constructed of a minimum of Schedule 80 piping and 2000 lb. or 3000 lb. forged steel fittings.

G. All piping shall comply with NFPA 2001.

H. Piping shall be installed in accordance with good commercial practice to the appropriate codes, securely supported with UL Listed hangers and arranged with close attention to the design layout since deviations may alter the design flow performance as calculated.

- I. Piping shall be bracketed within 12" (305 mm) of all discharge nozzles.
- J. All piping shall be reamed, blown clear and swabbed with appropriate cleaner to remove mill varnish and cutting oils before assembly.
- K. Multi-outlet fittings, other than tees, shall not be permitted.
- L. Assembly of all joints shall conform to the appropriate standards. On threaded pipe joints, TEFLON® tape shall be applied to the male threads only.

2.02 EXTINGUISHING AGENT

- A. The agent shall be INERGEN®, a trademark registered to Ansul Incorporated.

2.03 STORAGE CYLINDERS

- A. Cylinder assemblies shall be of steel construction with a red epoxy paint finish. Each cylinder shall be equipped with a pressure seat-type valve and gauge. The cylinder shall utilize Ansul CV-98 forged brass valve assemblies providing a leak-tight seal at the valve-to-cylinder connection. Each valve shall include a safety pressure relief device per CGA test methods.

- B. Filling of the cylinder assembly shall be by Ansul Incorporated or an authorized INERGEN systems distributor in conjunction with a factory authorized INERGEN agent filling station. Initial filling and recharge shall be performed in accordance with the manufacturer's established procedures and shall not require replacement components for normal service.

2.04 CYLINDER BRACKET

- A. Each cylinder assembly shall be furnished with a welded steel bracket. The bracket shall hold the cylinders in a saddle with a front securing device. The brackets shall be modular in design to allow added bracketing or stacking of cylinders depending on installation requirements.

- B. Cylinder brackets shall be UL listed and/or FM approved for use with the INERGEN system.

2.05 SELECTOR/CYLINDER VALVE ACTUATORS

- A. Electric valve actuators shall be of brass construction and stackable design with swivel connections to allow removal for maintenance or testing.

- B. Actuation devices shall be UL listed and/or FM approved for use with the INERGEN system.

2.06 DISCHARGE HOSE/CHECK VALVE

- A. When manifolding, all cylinder assemblies shall include a flexible discharge hose and check valve for connection to the manifold inlet.

- B. All hose/check valves shall be UL listed and/or FM approved for use with the Ansul CV98 valve.

2.07 DISCHARGE NOZZLES

- A. Discharge nozzles shall be of two-piece construction and sized to provide flow rates in accordance with system design calculations.

- B. A nozzle inlet orifice plate shall be included. A computerized UL listed flow calculation program shall determine the orifice size.

- C. Orifice(s) shall be machined in the nozzle body to provide a horizontal discharge pattern based on the approved coverage arrangements.

- D. Nozzles shall be permanently marked with the manufacturer's part number and threaded directly to the discharge piping without the use of special adapters.

- E. Nozzles shall be UL listed as manufactured by Ansul Incorporated.

2.08 MANIFOLD ORIFICE DEVICE

- A. An orifice device shall be included in the manifold to reduce pressure in the downstream pipe network. A separate manifold orifice device shall be included for any extended discharge nozzles.

- B. Manifold orifice devices shall be rated at 2000 lb. Class minimum.

- C. Manifold orifice devices shall be permanently marked with the manufacturer's orifice code.

- D. Manifold orifice devices shall be UL Listed and/or FM Approved for use with the INERGEN system.

2.09 SYSTEM CHECKOUT AND TESTING

- A. The completed installation shall be inspected by factory authorized and trained personnel. The inspection shall include a full operational test of all components per the equipment manufacturer's recommendations (including agent discharge).

- B. Inspection shall be performed in the presence of the owner's representative, architect or engineer's representative, insuring authority and/or the local authority having jurisdiction.

- C. All mechanical and electrical components shall be tested according to the manufacturer's recommended procedure to verify system integrity.

- D. Inspection shall include a complete checkout of the detection/control system and certification of cylinder pressure. A written report shall be filed with the owner.

- E. As-built drawings shall be provided by the contractor (2 copies) indicating the installation details. All routing of piping, electrical conduit and accessories shall be noted.

- F. Equipment installation and maintenance manuals shall be provided in addition to the as-built drawings.

- G. Prior to final acceptance, the contractor shall provide operational training to the owner's key personnel. Training shall consist of:

- 1) Control system operation.
- 2) Trouble procedures.
- 3) Abort procedures.
- 4) Emergency procedures.
- 5) Safety requirements.
- 6) Demonstration of the system (excluding INERGEN release).

- H. The quantity of agent shall reflect the actual design quantity of INERGEN agent.

- I. A functional test shall be completed prior to the concentration test consisting of detection, alarm, accessories related to the system, control unit and a review of the cylinders, piping, fittings, hangers and cylinder pressure.

3.01 WARRANTY

- A. All INERGEN system components furnished under this contract shall be guaranteed against defects in design, material and workmanship for the full warranty time which is standard with the manufacturer and/or supplier but not less than one (1) year from the date of system acceptance. In addition, the installing contractor must guarantee the system against false actuation or leakage due to faulty equipment, design or workmanship for a period of one (1) year from final acceptance.

For more information about Ansul Fire Protection Systems...

Contact your local Ansul Systems Distributor...

Or Call:

1-800-TO-ANSUL (USA/CAN)

1-715-735-7411 (International)



ISO 9001 Registered

ANSUL INCORPORATED
ONE STANTON STREET
MARINETTE, WI 54143-2542

A tyco INTERNATIONAL LTD. COMPANY